PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference	FOR FURTHER ACTION See Form PCT/IPEA/416	
P06448PC00		
International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/SE2004/000478	30-03-2004	22-12-2003
International Patent Classification (IPC) or national classification and IPC		
See Supplemental Box		
Applicant		
Telefonaktiebolaget LM Ericsson (publ) et al		

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 5 sheets, including this cover sheet.
3. This report is also accompanied by ANNEXES, comprising:
   a. ☒ *(sent to the applicant and to the International Bureau)* a total of 9 sheets, as follows:
      ☒ sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).
      ☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.
   b. ☐ *(sent to the International Bureau only)* a total of (indicate type and number of electronic carrier(s))
      _____, containing a sequence listing and/or tables related thereto, in electronic form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).
4. This report contains indications relating to the following items:
   - ☒ Box No. I Basis of the report
   - ☐ Box No. II Priority
   - ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
   - ☐ Box No. IV Lack of unity of invention
   - ☒ Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
   - ☐ Box No. VI Certain documents cited
   - ☒ Box No. VII Certain defects in the international application
   - ☐ Box No. VIII Certain observations on the international application

Date of submission of the demand	Date of completion of this report
08-08-2005	01-12-2005
Name and mailing address of the IPEA/SE Patent- och registreringsverket Box 5055 S-102 42 STOCKHOLM Facsimile No. +46 8 667 72 88	Authorized officer Stefan Dufva/MN Telephone No. +46 8 782 25 00

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of: Cover sheet

H04Q 7/38 (2006.01)

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/SE2004/000478

Box No. I Basis of the report

1. With regard to the **language**, this report is based on:

☐ the international application in the language in which it was filed

☐ a translation of the international application into _____, which is the language of a translation furnished for the purposes of:

☐ international search (Rules 12.3(a) and 23.1(b))

☐ publication of the international application (Rule 12.4(a))

☐ international preliminary examination (Rules 55.2(a) and/or 55.3(a))

2. With regard to the **elements** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report):*

☐ the international application as originally filed/furnished

☒ the description:

pages 1-67 as originally filed/furnished

pages* _____ received by this Authority on _____

pages* _____ received by this Authority on _____

☒ the claims:

pages _____ as originally filed/furnished

pages* _____ as amended (together with any statement) under Article 19

pages* 68-76 received by this Authority on 08-08-2005

pages* _____ received by this Authority on _____

☒ the drawings:

pages 1-18 as originally filed/furnished

pages* _____ received by this Authority on _____

pages* _____ received by this Authority on _____

☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

☐ the description, pages _____

☐ the claims, Nos. _____

☐ the drawings, sheets/figs _____

☐ the sequence listing *(specify)*: _____

☐ any table(s) related to the sequence listing *(specify)*: _____

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

☐ the description, pages _____

☐ the claims, Nos. _____

☐ the drawings, sheets/figs _____

☐ the sequence listing *(specify)*: _____

☐ any table(s) related to the sequence listing *(specify)*: _____

* *If item 4 applies, some or all of those sheets may be marked "superseded."*

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/SE2004/000478

Box No. V **Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Claims	1-47	YES
	Claims		NO
Inventive step (IS)	Claims	1-47	YES
	Claims		NO
Industrial applicability (IA)	Claims	1-47	YES
	Claims		NO

2. Citations and explanations (Rule 70.7)

The claimed invention

The present invention relates to macro diversity in a mobile communications system. In prior art the splitting and combining is done in the Radio Network Controller (RNC). This results in that the split downlink flows and the uncombined uplink flows of user data are transported all the way between the RNC and the Node B. This problem is solved by the macro diversity functionality being distributed to the Node B.

The claims have been amended.

Reference is made to the following documents:

D1: WO03096733 A1
D2: WO03096632 A1
D3: WO03049482 A1
D4: WO03017686 A2

D1 describes an IP radio access network with nodes (A-F). One node (A) corresponds to a radio access network gateway (RNGW), i.e. a gateway to the core network, (page 7 lines 6-8). The remaining nodes are base stations. Every node can be a macro diversity combining (MDC) point, (abstract). All the nodes have a view over the network topology, (page 9 lines 9-15).

A centralised resource managing device or the base stations can perform a selection of an MDC point (claims 22-26). The selection of the MDC point is based on the total hop of the MDC legs and path between the RNGW and the MDC point, (page 7 lines 31-36), and the load on the links between the nodes, (figure 7, page 12 line 28-page 13 line 4).

.../...

Box No. VII Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

In the description on page 5 line 22, it is stated that the arrangement is referred to in claims 25, 26 and 27. However, in the claims, claim 25 refers to a method.

Tables 1-8 in the description are not complete. The columns to the right are partly missing.

D2 relates to distributing network parameters, which are used in an MDC point selection procedure, (claims 1-3). A spanning tree is used to distribute the parameters, (page 10 lines 6-20).

D3 reveals that the combining and splitting functionality can be located in an RNC or in a Node B, (page 5 lines 19-21). The combining-splitting point can be an MDC point.

D4 also describes that the macro diversity combiner can be in an IP BTS, (page 2 lines 6-12).

Reasoned statement

D1 is considered to represent closest prior art. However, D1 as well as D2-D4 fail to disclose that more than one DHO node mail be selected irrespective of the number of legs in the macro diversity configuration.

Further, the cited references fail to disclose that the delay requirement is taken into account. According to the claimed invention, the resulting path delay must not exceed a maximum allowed path delay for any of the flows of the resulting macro diversity tree.

Consequently, the claimed invention as in claims 1-47 is novel, considered to involve an inventive step and has industrial applicability.